CLAIMS

1. A method for manufacturing a honeycomb formed body by use of a forming material including water and two or more types of aggregate particulate materials containing fine particles having an average particle diameter of 10 μm or less, the method comprising:

a mixing step of mixing (first mixing) the two or more types of aggregate particulate materials to thereby obtain a forming blend (dry powder); and

a kneading step of adding water to the forming blend (dry powder) and kneading them to thereby obtain a clay,

wherein the resultant clay is formed into a honeycomb structure in which a large number of cells are partitioned and formed by partition walls, and dried to thereby obtain the honeycomb formed body.

2. A method for manufacturing a honeycomb formed body by use of a forming material including water and two or more types of aggregate particulate materials containing fine particles having an average particle diameter of 10 μm or less, the method comprising:

a mixing step of mixing (first mixing) the two or more types of aggregate particulate materials to thereby obtain a forming blend (dry powder), further adding water, and mixing (second mixing) them to thereby obtain a forming blend (wet powder); and

a kneading step of kneading the forming blend (wet powder) to thereby obtain a clay,

wherein the resultant clay is formed into a honeycomb structure in which a large number of cells are partitioned and formed by partition walls, and dried to thereby obtain the honeycomb formed body.

3. The method for manufacturing the honeycomb formed body according to claim 1 or 2, further comprising: a clay kneading step of forming the clay obtained by the kneading step into a predetermined shape, after the kneading step and before forming the honeycomb structure.

4. The method for manufacturing the honeycomb formed body according to any one of claims 1 to 3, wherein the surface of the aggregate particulate material is coated before the mixing step.

5. The method for manufacturing the honeycomb formed body according to any one of claims 1 to 4, wherein the aggregate particulate material is classified beforehand to remove an agglomerate before the mixing step.

6. The method for manufacturing the honeycomb formed body according to any one of claims 1 to 5, wherein the mixing step performs the first mixing so that a residue (agglomerate) of the forming blend (dry powder) on a sieve

having an aperture of 500 μm is 1% by mass or less.

7. The method for manufacturing the honeycomb formed body according to any one of claims 1 to 6, wherein when water is added, a surfactant is further added as a dispersant.

8. The method for manufacturing the honeycomb formed body according to any one of claims 1 to 7, wherein in the mixing step, the mixing is carried out while pressurizing vibration is applied to the forming material.

9. The method for manufacturing the honeycomb formed body according to claim 8, wherein the pressurizing vibration is generated by ultrasonic waves.

10. The method for manufacturing the honeycomb formed body according to claim 8, wherein the pressurizing vibration is generated by containing the forming material and pebbles in a container, and vibrating the container.

11. The method for manufacturing the honeycomb formed body according to any one of claims 1 to 7, wherein the mixing step is performed using a mixer having a stirring blade, and

the mixing is carried out by rotating the stirring blade to stir the forming material whiling applying a

shearing force to the forming material.

12. The method for manufacturing the honeycomb formed body according to claim 11, wherein the stirring blade is rotated at 500 rpm or more.

13. The method for manufacturing the honeycomb formed body according to claim 11, wherein the stirring blade is rotated at a peripheral speed of 2 m/second or more.

14. The method for manufacturing the honeycomb formed body according to any one of claims 1 to 13, wherein the mixing step is performed using a mixer having a cooling function.

15. The method for manufacturing the honeycomb formed body according to any one of claims 1 to 14, wherein the mixing step and the kneading step are performed with individual devices, respectively, and

a mixer which performs the mixing step is directly connected to a kneader which performs the kneading step.

16. The method for manufacturing the honeycomb formed body according to any one of claims 1 to 15, wherein as the aggregate particulate material, there is used a cordierite forming material which contains alumina (Al_2O_3)

fine particles having an average particle diameter of 10 μm or less and/or aluminum hydroxide ($Al(OH)_3$) fine particles having an average particle diameter of 10 μm or less.

17. The method for manufacturing the honeycomb formed body according to any one of claims 1 to 16, wherein a material containing a pore former and a binder is used as the forming material, in addition to the aggregate particulate material and water.

18. The method for manufacturing the honeycomb formed body according to claim 17, wherein microcapsules made of a foamed resin are used as the pore former.

19. The method for manufacturing the honeycomb formed body according to any one of claims 1 to 18, wherein water is added, water is added while sprayed.

20. The method for manufacturing the honeycomb formed body according to any one of claims 1 to 19, wherein the forming is extrusion forming by use of a die having slits of a shape complementary to that of partition walls.

21. The method for manufacturing the honeycomb formed body according to claim 20, wherein as the aggregate particulate material, there is used a material containing a powder passed through a sieve whose aperture is 4/5 or less

of a slit width of the die.

22. The method for manufacturing the honeycomb formed body according to claim 20, wherein the extrusion forming is performed using the die in which back holes are provided in all intersections of the slits.

23. The method for manufacturing the honeycomb formed body according to any one of claims 20 to 22, wherein at least a part of a corner portion of a cell block forming the slit of the die is provided with a curvature.

24. The method for manufacturing the honeycomb formed body according to any one of claims 20 to 23, wherein the extrusion forming is performed using a biaxial continuous former.

25. The method for manufacturing the honeycomb formed body according to any one of claims 20 to 24, wherein when the extrusion forming is carried out, the clay is passed through a sieve having an aperture of 160 to 278 μm, and extruded from the die.

26. A method for manufacturing a honeycomb filter, comprising the steps of: obtaining a honeycomb formed body by the manufacturing method according to any one of claims 1 to 25; firing the honeycomb formed body to thereby obtain

a porous honeycomb structure; alternately plugging one opening and the other opening of each of a large number of cells of the porous honeycomb structure to thereby obtain a plugged honeycomb structure; and firing the plugged honeycomb structure to obtain the honeycomb filter constituted so that foreign matters are trapped by partition walls, when a fluid to be treated introduced into a part of the cells passes through the porous partition wall to flow into the adjacent cell.

27. A method for manufacturing a honeycomb filter, comprising the steps of: obtaining a honeycomb formed body by the manufacturing method according to any one of claims 1 to 25; alternately plugging one opening and the other opening of each of a large number of cells of the honeycomb formed body to thereby obtain a plugged honeycomb formed body; and firing the plugged honeycomb formed body to obtain the honeycomb filter constituted so that foreign matters are trapped by partition walls, when a fluid to be treated introduced into a part of the cells passes through the porous partition wall to flow into the adjacent cell.

28. A honeycomb filter comprising: a porous honeycomb structure having a large number of cells formed by partitioning the structure by porous partition walls; and plugging portions which alternately plug one opening and the other opening of each of the large number of cells,

the filter being constituted so that foreign matters are trapped by partition walls, when a fluid to be treated introduced into a part of the cells passes through the partition wall to flow into the adjacent cell,

wherein a soot leak cell ratio evaluated by a soot printing test is 1 cell/1000 cells or less.

29. The honeycomb filter according to claim 28, wherein at least the porous honeycomb structure is constituted of cordierite.